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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/431,157

11/01/1999

YEA-SUN YOON

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8343

7590

02/25/2003

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EXAMINER

CHUNG, DAVID Y

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 02/25/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/431,157

Applicant(s)

YOON ET AL.

Examiner

David Y. Chung

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 January 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

1. Claims 1-5 and 24-26 rejected under 35 U.S.C. 102(3) as being anticipated by Kim et al. (U.S. 6,100,953).

Kim discloses a multi-domain liquid crystal display with concave recesses in the color filter. Note in figure 2A, the color filter 23, common electrode 17, black matrix 25, and pixel electrode 13. The depth of recesses 19 is less than the thickness of color filter 23. The plan view of figures 7A and 7B clearly show that the black matrix defines the pixel area and that the recesses 19 divide the pixel into a plurality of domains.

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Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 6-30 rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al. (U.S. 6,100,953) in further view of Lien et al. (U.S. 5,309,264) and Koma (U.S. 5,608,556).

As to claims 6-10, Kim et al. does not disclose pixel electrodes with apertures. Lien et al. discloses a liquid crystal display having multi-domain cells. See abstract and figure 2. Although Lien et al. discloses a multi-domain cell with apertures in the common electrode, it was well known and obvious to those of ordinary skill in the art that apertures in the pixel electrode could also be used to create multi-domain displays as evidenced by the disclosure of Koma. See abstract and note aperture 33b formed in the pixel electrode as opposed to aperture 33a formed in the common electrode. Therefore, it would have been obvious to those of ordinary skill in the art at the time of invention to add apertures to the pixel electrodes in the display of Kim et al. in order to create a multi-domain liquid crystal display.

As to claims 11-14, Lien et al. discloses the same aperture pattern as that claimed by the applicant. See figure 2.

As to claims 15-18, the multi-domain liquid crystal display of Lien et al. can be either homeotropic or twisted nematic. See abstract. With homeotropic liquid crystal displays, it was conventional to use liquid crystal material with negative dielectric anisotropy. It was also conventional to use liquid crystal molecules with chirality. Figure 2 of Lien et al. shows the polarizing axes 66 and 68 of the two polarizers to be perpendicular to each other. This feature was conventional for any type of display. Therefore, it would have been obvious to those of ordinary skill in the art at the time of invention to use perpendicularly aligned polarizers and liquid crystal molecules with chirality and negative dielectric anisotropy in a homeotropic multi-domain liquid crystal display because it was conventional.

As to claims 19-23, figures 5, 6, 9, and 10 of Lien et al. clearly show minute domains formed in the pixel area by the apertures where the average direction of the long axes of the liquid crystal molecules are directed in several directions, each minute region with a different direction. It was well known and obvious that the aperture pattern determined the number of minute regions and therefore the number of directions in which the liquid crystal molecules would be directed.

As to claim 27, this method claim does not disclose anything that is patentably distinct from the device of claims 1-5 as the method steps are merely a recitation of structural elements. Therefore, this method would have been obvious to one of ordinary skill in the art at the time of invention.

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As to claim 28, forming the common electrode by two depositions of ITO was a conventional method of forming the common electrode. Therefore, this method would have been obvious to one of ordinary skill in the art at the time of invention.

As to claims 29 and 30, these methods for forming a color filter with grooves were conventional and functionally equivalent methods. Therefore, they would have been obvious to those of ordinary skill in the art at the time of invention.

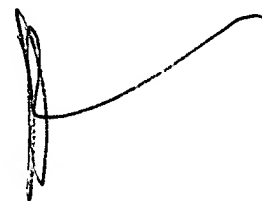
Response to Arguments

Applicant's arguments with respect to claims 1-30 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Chung whose telephone number is (703) 306-0155. The examiner can normally be reached on Monday-Friday from 8:30 to 5:00.

David Chung
GAU 2871
02/21/03



Kenneth Parker
Primary Examiner
GAU 2871